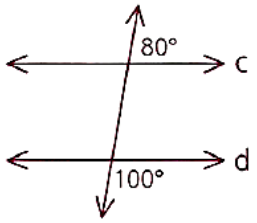
Name: _____

3.5 • Proving Lines Parallel

Past due on: _____ Period:_____

Can you prove that $c \parallel d$? If so, identify the theorem or postulate used.

1.



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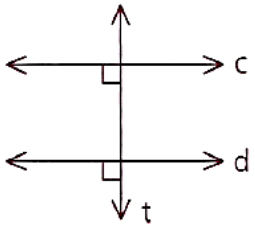

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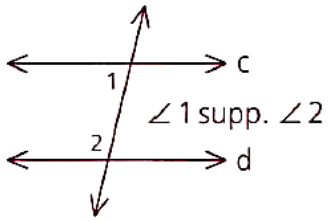
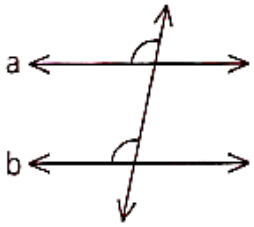


Can you prove that $a \parallel b$? If so, identify the theorem or postulate used.

4.



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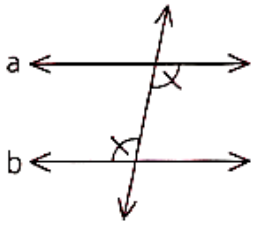

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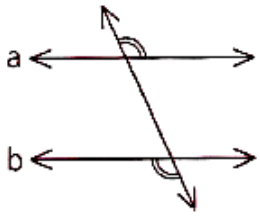


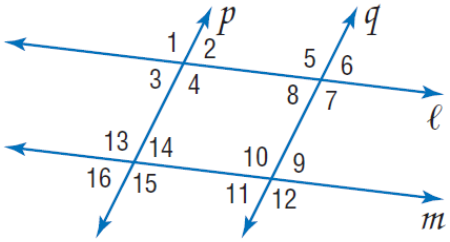
Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

7. $\angle 16 \cong \angle 3$

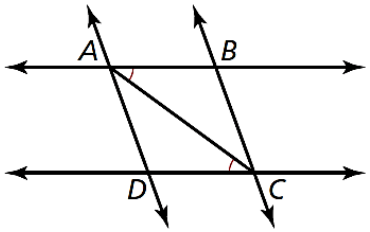
8. $\angle 4 \cong \angle 13$

9. $m\angle 14 + m\angle 10 = 180$

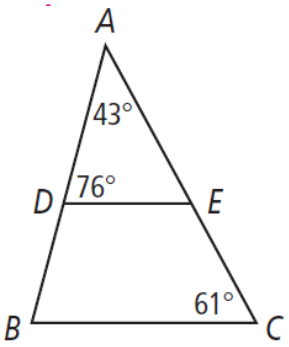
10. $\angle 1 \cong \angle 7$



11. Your classmate decided that $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$ based on the diagram which shows that $\angle BAC \cong \angle DCA$. Is your classmate correct? Explain your reasoning.

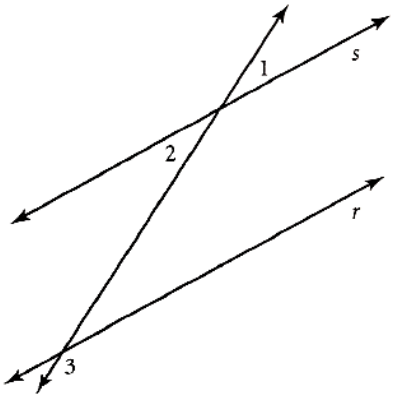


12. Given: $m\angle A = 43°$, $m\angle ADE = 76°$, & $m\angle C = 61°$
Explain how $\overline{DE} \parallel \overline{BC}$.



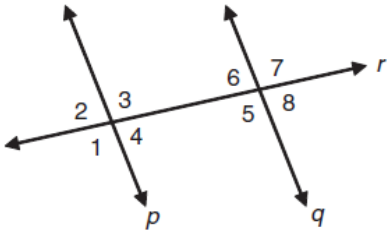
13. Given: $m\angle 1 = 3x + 14$, $m\angle 2 = 9x + 14$, and $m\angle 3 = 30x + 14$

    Determine whether or not $r \parallel s$. Explain your reasoning.

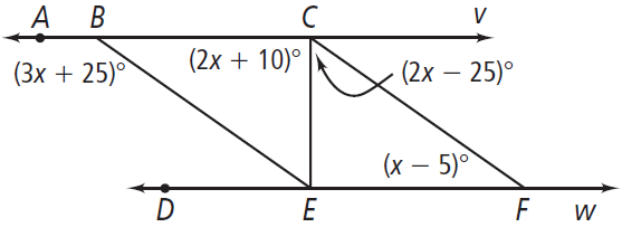


14. Given: $m\angle 1 = (7x - 12)°$, $m\angle 3 = (6x + 4)°$, & $m\angle 8 = (5x)°$

    Show that line p is parallel to line q. Explain your reasoning.



15. Use the angles in $\triangle CEF$ to find what value of x makes $v \parallel w$.



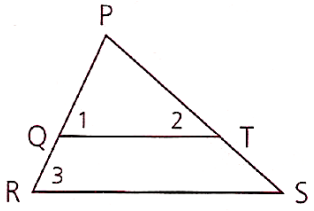
Find $m\angle CEB$.

Is $\overline{BE} \parallel \overline{CF}$? Explain your reasoning.

Two-Column Proof Problems:

16. Given: $\angle 1$ is comp. to $\angle 2$
$\angle 3$ is comp. to $\angle 2$

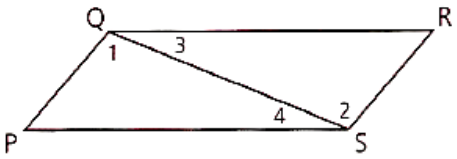
Prove: $\overline{QT} \parallel \overline{RS}$



STATEMENTS	REASONS

17. Given: $\angle 1 \cong \angle 2$
$\angle PQR \cong \angle RSP$

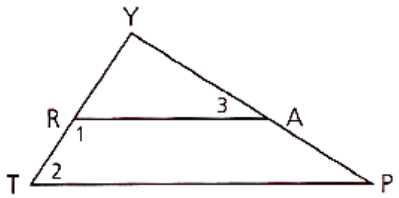
Prove: $\overline{QR} \parallel \overline{PS}$



STATEMENTS	REASONS

18. Given: $\angle 2 \cong \angle 3$
$\angle 1$ is supp. to $\angle 3$

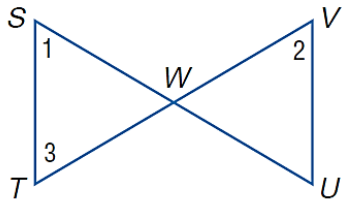
Prove: $\overline{RA} \parallel \overline{TP}$



STATEMENTS	REASONS

19. Given: $\angle 2 \cong \angle 1$
$\angle 1 \cong \angle 3$

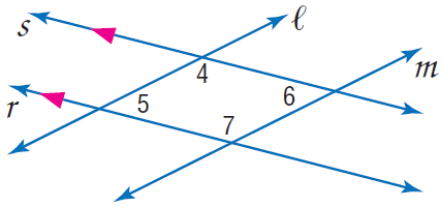
Prove: $\overline{ST} \parallel \overline{UV}$



STATEMENTS	REASONS

20. Given: $r \parallel s$
$\angle 5 \cong \angle 6$

Prove: $\ell \parallel m$



STATEMENTS	REASONS